



## ***Transforming the Resilience of Cognitive, Cyber-physical Systems***

**Statement of Themes:** Symposia dedicated to promising research in resilient systems that will protect critical cyber-physical infrastructures from unexpected and malicious threats--securing our way of life.

### ***Special/Invite Announcement & Call for Papers***

#### **Session S/I-04: Resilience and Asymmetry**

##### **Session Abstract:**

When most researchers in the area of cyber resilience think of asymmetry, they define it in terms of the imbalance between the attacker and the defender. For the purposes of this session, we propose a slightly more rigorous definition. Specifically we define asymmetry as “a disproportionate, exploitable imbalance between actors related to, but not limited to, resources, level of effort, risk, or consequences in an attack.” Foundational work has been recently accomplished in examining the concepts, economics, architectures and measurements of asymmetry and it’s relation with resilience. In this session, we will present a summary of this previous work. In addition, the session will host two presenters who will examine these concepts through the lens of their operational needs.

##### **Chairs:**

- Nick Multari, *Pacific Northwest National Laboratory*, [nick.multari@pnnl.gov](mailto:nick.multari@pnnl.gov)
- Chris Oehmen, *Pacific Northwest National Laboratory*, [chris.oehmen@pnnl.gov](mailto:chris.oehmen@pnnl.gov)

#### **Contact Information**

##### ***Resilience Week***

[Craig Rieger](#), *Idaho National Laboratory*  
[Jodi Grgich](#), *Idaho National Laboratory*

##### ***Control Symposium***

[Frank Ferrese](#), *Naval Sea Systems Command*  
[David Scheidt](#), *Johns Hopkins University*

##### ***Cyber Symposium***

[Marco Carvalho](#), *Florida Institute of Technology*  
[Michael Atighetchi](#), *BBN*  
[Annarita Giani](#), *GE Global*

##### ***Cognitive Symposium***

[Ron Boring](#), *Idaho National Laboratory*  
[Roger Lew](#), *University of Idaho*  
[Nathan Lau](#), *Virginia Tech*

##### ***Communication Symposium***

[James Sterbenz](#), *The University of Kansas*  
[Jie Wu](#), *Temple University*

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